



PATENT

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JS

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Richard G. Henry  
Serial No. : 09/515,948  
Filed : February 29, 2000  
Title : ZERO VOLATILE ORGANIC SOLVENT  
COMPOSITIONS  
Group Art Unit : 1721  
Last Office Action : April 12, 2001  
Attorney Docket : ACD 20016-1-3

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JUL 11 2001

TC 1700

Cleveland, Ohio 44114-2518

DECLARATION UNDER 37 C.F.R. §1.131

Commissioner of Patents and Trademarks  
Washington D. C. 20231

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TC 1700

Dear Sir:

As a person signing below:

1. I, Richard G. Henry, do hereby declare and say that I am an inventor in the above-identified United States patent application, serial no. 09/525,948.

2. I have read and am familiar with the U.S. Patent No. 6,187,736, issued to Jarema on February 13, 2001.

3. I declare that at a date prior to March 11, 1998 the claimed priority date of U.S. Patent No. 6,187,736, the invention disclosed in the present application was completed in this country. In this regard, I have attached hereto copies of data reproduced from my Laboratory notes (dates omitted), and other

technical data material which establishes the completion of the invention prior to March 11, 1998. I hereby declare that the attached evidentiary materials were prepared prior to March 11, 1998.

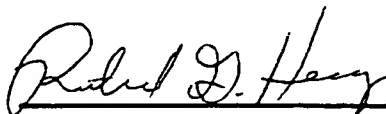
4. Specifically, Exhibit 1, attached hereto, shows that t-butyl acetate identified as a zero volatile organic compound. The t-butyl acetate was tested as a MIR (Maximum Incremental Reactivity) reducing agent for VOC solvents.

5. The data in the Table on pages 2-3 of the attached notebook pages shows that addition of between 5% and 99.9% of zero VOC solvents (1)-(4) can reduce the MIR of a VOC solvent by 20% to 40% affecting the cleaning properties of the VOC solvent.

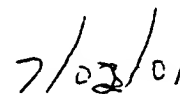
6. Each of the dates deleted from Exhibit 1 is prior to March 11, 1998.

7. It is submitted that the information in attached Exhibit 1 demonstrates that the invention of t-butyl acetate as zero-VOC solvents admixed with a VOC solvent to reduce atmospheric reactivity of the VOC solvent was completed in this country at a date prior to March 11, 1998.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.



Richard G. Henry



(Date)



Rich Henry  
Apt 1522  
Gates Mills Towers

# Reduced Volatile Organic Content including reactivity for cleaning agent compositions

## Zero-VOC Solvents

- 1) 1-Bromopropane
- 2) Benzotrifluoride
- 3) t-Butyl Acetate
- 4) Acetone

MIR 2.7-8.2

MIR 0.44-1.40

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MIR 0.56-1.18

MIR 0.42-2.7

## VOC Solvents

### Aromatic

- 1 xylene
- 2 Toluene
- 3 Napthenic

### Glycol ethers (From Dow & Union carbide)

- 4 Ethylene Glycol n-Butyl ether
- 5 Diethylene Glycol n-Butyl ether
- 6 Diethylene Glycol methyl ether
- 7 Ethylene Glycol Phenyl ether
- 8 Propylene Glycol methyl ether
- 9 Dipropylene Glycol methyl ether
- 10 Propylene Glycol methyl ether acetate
- 11 Propylene Glycol n-propyl ether
- 12 Dipropylene Glycol n-propyl ether
- 13 Propylene Glycol n-Butyl ether
- 14 Tripropylene Glycol n-propyl ether
- 15 Tripropylene Glycol n-Butyl ether

### Ketones

- 16 Methyl Isomyl ketone
- 17 Methyl Isobutyl ketone
- 18 Methyl N-Amyl ketone
- 19 Methyl N-Propyl ketone

### Terpenes

- 20 D-Limonene (ALCANTARA)
- 21 Terpene Hydrocarbons (saturated)
- 22 Pinene

### Alcohols

- 23 n-Propyl Alcohol
- 24 Isopropyl Alcohol

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# VOC Solvents continued

26 methyl ALCOHOL

27 ethyl ALCOHOL

## Aliphatic Solvents

MIR 0.83-0.84 28 mineral SPIRITS

" 0.32-1.1 29 n-PARAFFINS

" 0.80 30 n-HEX PARAFFINS

## esters

31 n-Butyl Acetate

MIR 0.75-1.5

32 methyl Acetate

33 ethyl Acetate

34 propyl Acetate

35 Propylene CARBONATE

36 DiBASIC esters.

37 n-methyl PYRROLIDINE

## CLEANING EFFECTIVENESS

### VOC COMPOUNDS

### SOIL REMOVAL

FROM STEEL COATED WITH MINERAL OIL

% by volume of  
ZERO-VOC COMPOUND TO  
REACH MIR-20-40%

~~1-37~~ ✓

excellent

5-98

1

"

5-98

2

"

5-98

3

"

10-99.9

4

very good

"

5

"

4

6

"

4

7

"

4

8

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4

9

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4

10

"

4

11

"

4

12

"

4

13

"

4

RE  
[Signature]

Rich Henry  
Att 152  
Gates Mills Towers

# CLEANING EFFECTIVENESS (CONTINUED)

VOC COMPOUNDS	SOIL REMOVAL FROM <u>STEEL COATED WITH MINERAL OIL</u>	% by volume OF Zero-VOC compound to MEET MTR 20-40%
14	Very Good	10-99.9
15	Very Good	10-99.9
16-19	excellent	5-95.5
20-22	Good	5-98
23-27	Good - Very Good	10-99.9
28-30	Good	10-98
31-37	excellent	5-90

RE